original line to a corresponding point on the first moving original line, thereby performing similarity-like transformation of the normal plane cross sectional shape.

REMARKS

Claims 12-51 have been withdrawn in response to the restriction dated 4 June 2007, leaving claims 1-11 pending in this application.

In the Office Action mailed on September 25, 2007, the Examiner rejected claims 1-11 under 35 U.S.C. § 101 as being directed to non-statutory subject matter, under 35 U.S.C. § 112 as being indefinite, and under 35 U.S.C. § 102(b) as being anticipated by *Borrel et al.* "Deformation of n-dimensional objects." Applicants respectfully traverse these rejections. By this Amendment, Applicants have amended claims 1, 2, 5, and 6 to point out aspects of the invention.

Section 101 Rejections

Claims 1-11 were rejected by the Examiner under 35 U.S.C. § 101 as being directed to non-statutory subject matter. In particular, the Examiner argued that the claims "do not produce a useful, concrete, and tangible result." Applicants respectfully disagree.

All of claims 1-11 recite an apparatus and/or a method for generating new design data of an article by performing a shape transformation process. All of claims 1-11 produce "useful, concrete and tangible results", e.g., "new design data" for an existing article. The new design data can produce new design shapes, for example, "a new base shape" as recited in the amended claim 2. Because all of claims 1-11 produce

useful, concrete and tangible results, Applicants request the withdrawal of the section 101 rejections of claims 1-11.

Section 112 Rejections

The Examiner rejected claims 1-11 under 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For example, the Examiner argues that in claim 1, "[I]t is unclear what is meant by an article as well as how a shape is allocated between two attributes when an attribute is merely a property of a thing. This renders the claim vague and indefinite." Office Action, p. 3. By this amendment, Applicants have amended claims 1, 2, 5, and 6 to clarify aspects of the invention.

Based on the amended claims, Applicants believe all the claims particularly point out and distinctly claim the subject matter which the applicants regard as their invention. Therefore, Applicants respectfully request withdrawal of the section 112 rejections of claims 1-11.

Section 102 Rejections

The Examiner also rejected claims 1-11 under 35 U.S.C. § 102(b) as being clearly anticipated by *Borrel et al.* "Deformation of n-dimensional objects." The Applicants respectfully disagree.

Borrel et al. discloses a mapping "technique for computing space deformations that interpolate a set of user-defined constraints." *Borrel et al.*, p. 351. The technique achieves deformation by a polynomial mapping from space R^n to R^n. It involves two steps of mapping. First, it maps points from the R^n space into a higher-dimensional

space, the R^m space, using a polynomial function f of R^n. Then it maps the points back

from R^m space to R^n space with a linear projection. *Borrel et al.*, p. 351.

Although the reference by *Borrel et al.* discloses a shape transformation process,

it does not disclose every element disclosed in claims 1-11. For example, the reference

by *Borrel et al.* does not disclose "a transformation region for which the shape

transformation process is to be performed" and "a maintaining region which maintains

its shape", as recited in amended claim 1. The Examiner refers to "interactive editing

and shape-dependent transformation" in the Introduction section of the reference.

Office Action, p. 6. However, neither "interactive editing" nor "shape-dependent

transformation" discussed in the reference discloses "a transformation region" and "a

maintaining region" as recited in claim 1. For another example, amended claim 5

recites that, in the shape transformation process, "a node located at a boundary

between the transformation region and the maintaining region not being displaced and a

node belonging only to the transformation region being displaced in accordance with the

input transformation instruction vector." Regarding original claim 5, the Examiner cited

the "point displacement" and "intermediate space" described in Sections 2.1 and 2.2 of

the reference. However, neither "point displacement" nor "intermediate space"

discussed in the reference discloses "a node located at a boundary between the

transformation region and the maintaining region." As a further example, all of the

claims disclose a "transformation instruction vector," which is not taught in the

reference. The Examiner points to a vector utilized in user modification (Section

4.3.2.1) disclosed in the reference. However, these two vectors are different. The

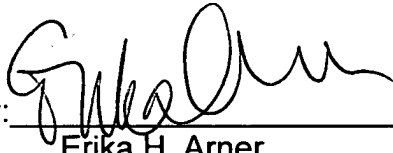vector recited in the claims "is defined by a direction and an amount of transformation

with respect to the article," unlike the vector disclosed by *Borrel et al.*, which is "the

gradient of a function the user wishes to optimize." *Borrel et al.*, § 4.3.2.1. Since *Borrel*

et al. does not teach every element of the claims, the Applicants respectfully request the

Examiner withdraw the section 102 rejections.

In view of the foregoing amendments and remarks, Applicants respectfully

request the reconsideration and allowance of all pending claims. Please grant any

extensions of time required to enter this response and charge any additional required

fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: December 17, 2007   By:_____
Erika H. Arner
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